Summarize, represent, and interpret data on a single count or measurement variable. While students may have heard of the normal distribution, it is unlikely that they will have prior experience using it to make specific estimates. Build on students' understanding of data distributions to help them see how the normal distribution uses area to make estimates of frequencies (which can be expressed as probabilities). Emphasize that only some data are well described by a normal distribution (Standard S.ID.4).
Standard III.S.ID.4: Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.
Concepts and Skills to Master
• Understand that the shape of a normal distribution is symmetric, single-peaked, and bell shaped. • Distinguish between data that is and data that is not approximately normally distributed. • Know that any normal distribution can be described by its mean and standard deviation. • Understand how the normal distribution uses area to make estimates of frequencies (which can be expressed as probabilities). • Know the Empirical Rule refers to 68%, 95%, or 99.7% of approximately normally distributed data corresponding to being within 1, 2, or 3 standard deviations from the mean, respectively. • Estimate areas under a normal curve using the Empirical Rule. (Students in this course are not expected to use z tables or technology to find more precise values.)

Related Standards: Current Course	Related Standards: Future Courses
III.S.IC.1, III.S.IC.3, III.S.IC.4	AP Statistics

Support for Teachers

Critical Background Knowledge (Access Background Knowledge)
• Understand measures of center and variability (6.SP.3, 6.SP.5c, and 7.SP.4) • Interpret shape, center (median, mean), and spread (interquartile range, standard deviation) in context (I.S.ID.2 and I.S.ID.3)
Academic Vocabulary
normal distribution, mean, standard deviation, symmetry, Empirical Rule
Resources
Curriculum Resources: http://www.uen.org/core/core.do?courseNum=5630#71570